

SUPPLEMENT.

The Mining Journal, RAILWAY AND COMMERCIAL GAZETTE:

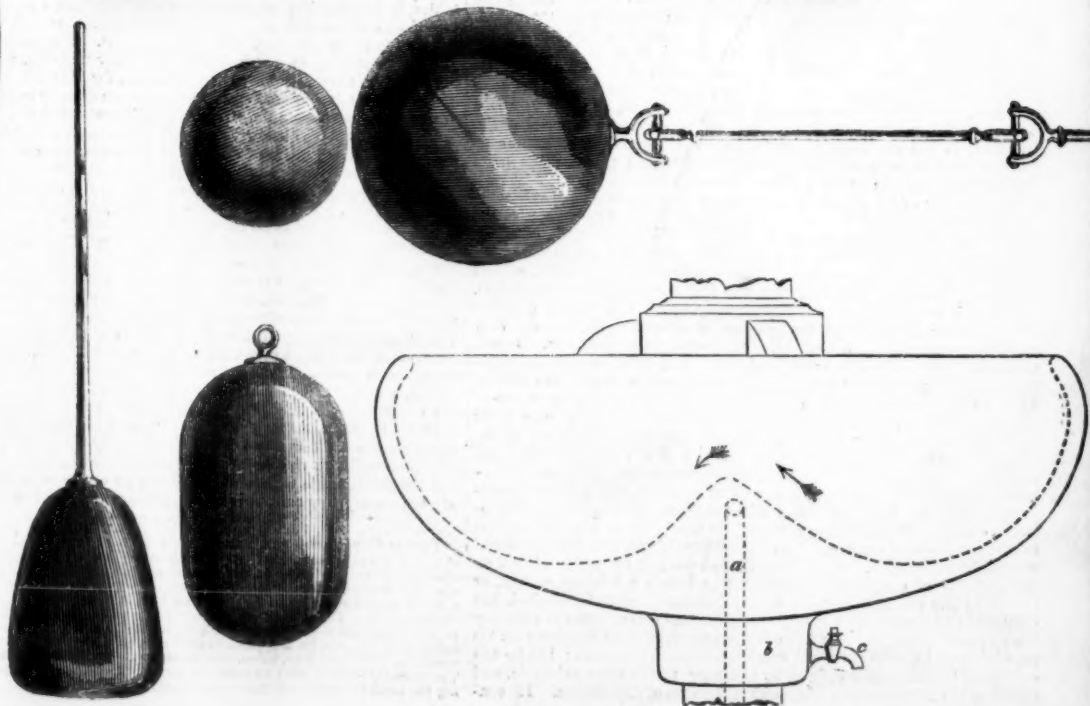
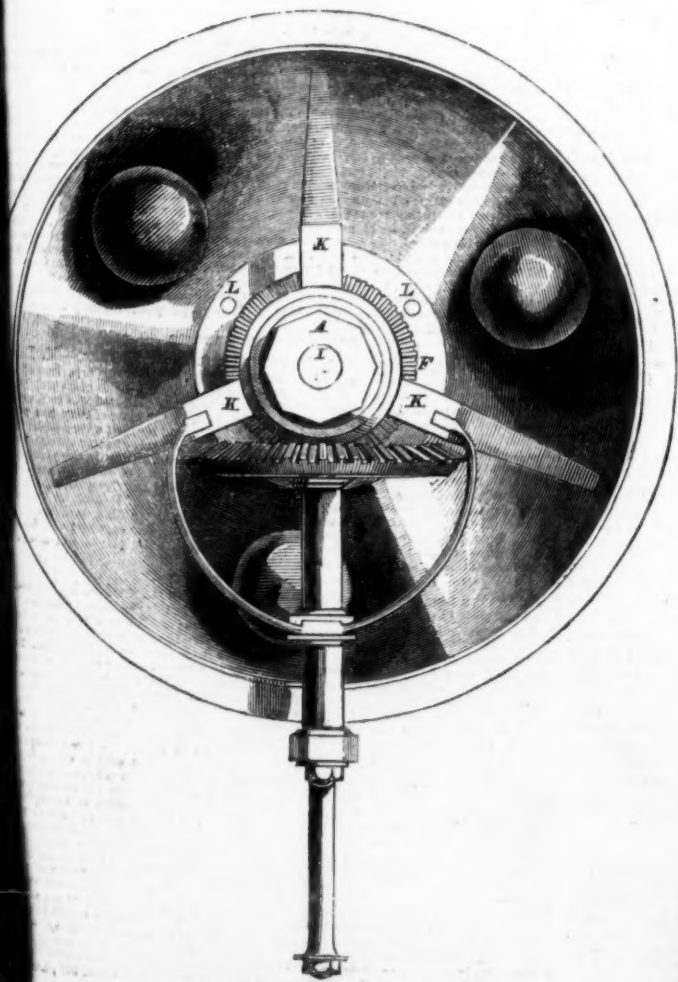
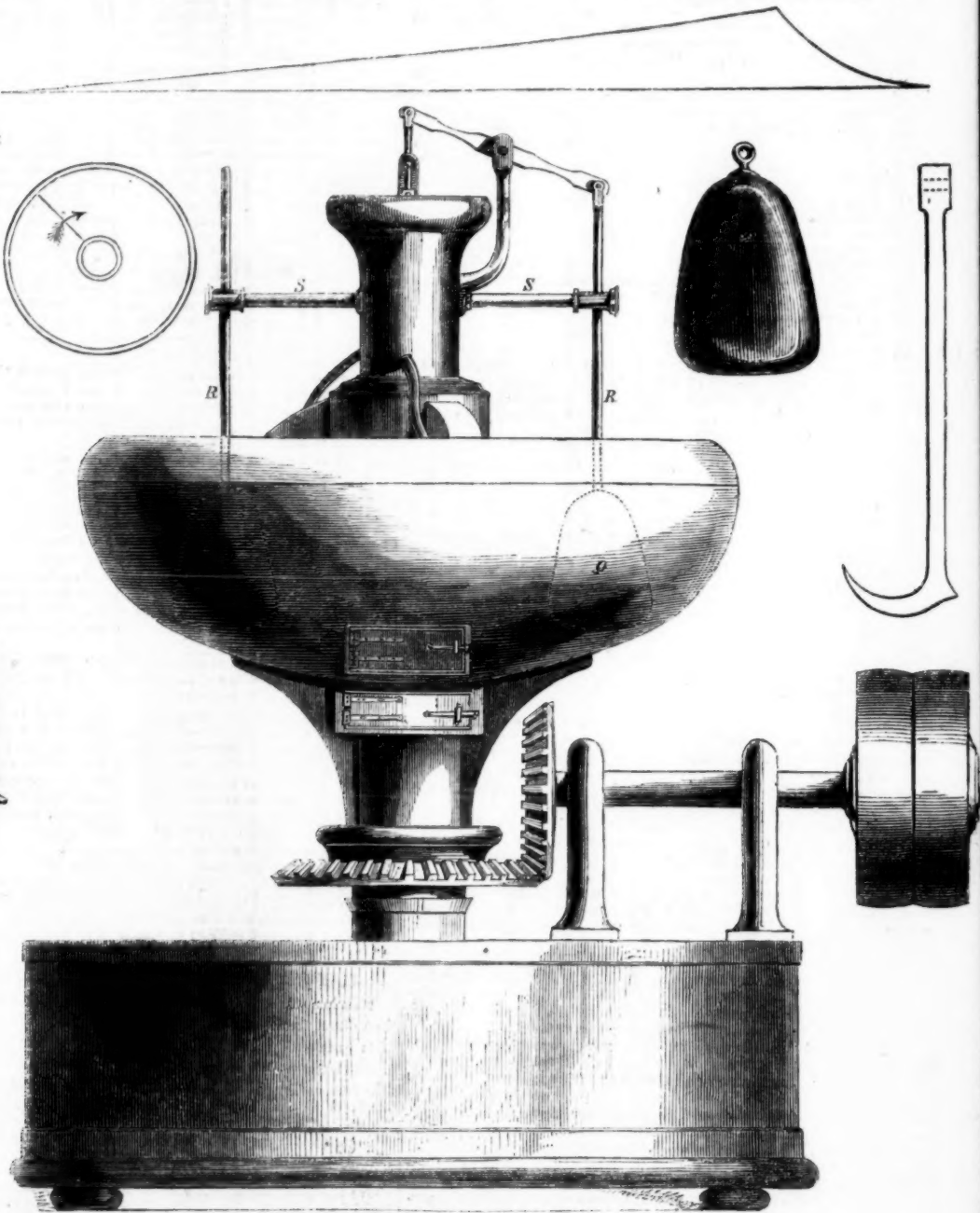
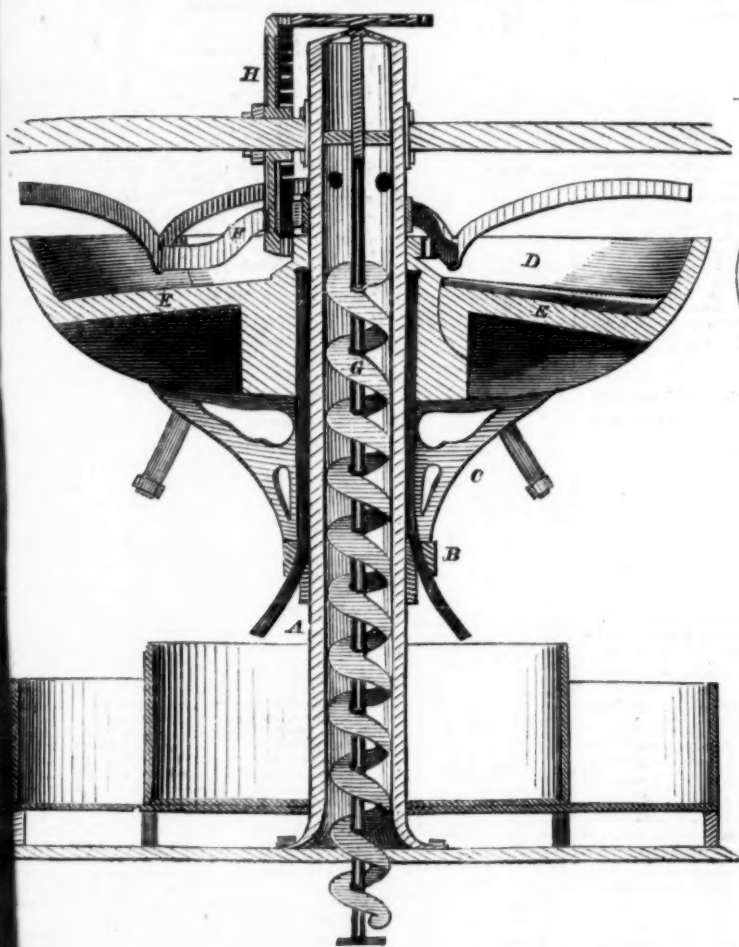
FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 985---VOL. XXIV.]

LONDON, SATURDAY, JULY 8, 1854.

[GRATIS.]

THE UNIVERSAL CIRCULAR STAMPER, PULVERISER, AND AMALGAMATOR.



A - Central fixed shaft.
B - Collar upon which the basin revolves.
C - Brackets which support the basin.
D - The basin.
E, E - The curves.
F - Arms attached to the shaft which drive the spheres over the curves.
G - Archimedes' screw for lifting water.
H - Driving wheel.

In the *Mining Journal* of the 29th April last we referred briefly to an arrangement for reducing auriferous rocks, and crushing and mixing drugs and other substances, patented by Mr. Huygens, which involves an entirely novel principle, founded on convictions arrived at from practical experience. The inventor has obtained much sound information during his travels, and several years' sojourn in the mining districts of Central and North America, the West Indies, France, Germany, and Russia; and having himself superintended the operations of mines, may be considered well qualified to form a correct opinion as to general results, to avoid the errors of former inventors and practitioners; and he has in this instance struck out a course for himself in undoubtedly new and hitherto unexplored ground.

In view of these principles, the inventor has constructed his machine, of which the above diagrams will convey a representation. It consists of a circular basin, or trough, constructed with an angle of ascent, an incline plane, and a fall, as will be seen in the left-hand figure. In a basin 2 feet in diameter there would be but one incline and one fall; in one 4 feet in diameter, two inclines and two falls; and in a machine of 6 feet diameter, three angles of ascent and three falls; the inventor having established by his own conviction that an angle of descent of 45°, and a range of ascent of 6 feet in length, with a fall of from 3 to 6 inches, according to the hardness of the materials, constitutes the best proportions for effectual results; and it is these angles of ascent and descent which form the claim to patent right. The basin rotates, and to the shaft are fixed arms, compelling the ball to ascend the incline, crushing every particle of matter in its progress; when arriving at the highest point, and descending a very short and rapid incline, it receives a momentum, which greatly reduces the friction between it and the fixed arm.

This apparatus would be serviceable in Australia and California at stream-works, as the washing caused by the rotating balls bringing into equilibrium the centrifugal and centripetal forces, will produce the same effect as the cradle, with much greater efficiency. The patentee estimates that a trough of 6 ft. in diameter, with three inclines and falls, and balls weighing 500 lbs. each, with a 6-horse power engine, making 20 revolutions per minute, but which could be brought to 60 and more revolutions per minute, would pulverise 24 tons of the hardest ores per day. The inventor wished it to be understood that his machine is not confined to gold mines or placers, but is intended to act on all sorts of ores, silver, tin, lead, copper, antimony, &c., in reducing them to a fine powder.

We understand Mr. Hyguens to state, that it was a great error to believe that the different questions, relating as well to the mechanical as to the metallurgical reduction of ores, were in the least settled by the actual state of science. In his opinion, we are only on the threshold of improvement, and nothing would do more harm to the progress of knowledge than to suppose, that because ores have been for many years worked according to certain determined rules, and beyond those methods no greater profits could be obtained, that, therefore, those modes ought to be adhered to. The day was only dawning that would show modes of extracting and reducing the mineral wealth much more effectual than the present system. There was no good reason whatever to follow in the wake of the inhabitants of those renowned mineral countries of the New World, where difference of climate and want of easy communications had obliged the explorers to adhere to certain limited means of extraction. Nature had certainly favoured them, but for the want of roads through their impenetrable forests, and over the rugged precipices of their mountains, they had been deprived of those powerful metallic engines, and of steam as a motive power, which ought to enable us to overcome every obstacle. But then, in the application of those mechanical powers, there was an unalterable rule to be observed, indispensable in all the occupations of life, but above all in mining. That principle was economy. Between the exploration of the vegetable and mineral kingdom, then, was that difference—that excess of live stock and manure, and improvements to the farm, was only entrusting a capital to the surface of the earth, of which the fruits would be harvested by a succeeding tenant; while excess of expenditure on the mine was sunk in the deep bowels of the earth, seldom to return. Economy was, therefore, the first question to be attended to. He heard it continually stated that such and such a machinery cost less than another; that stamps, for instance, were preferable, because they could be procured at less cost. But that was not the question. It was to be determined which was the machinery that, in a given time, would produce most at the least expense. He had known of stamps crushing 30 tons a day, but moved by a 35-horse power engine, and the waste of power overlooked, because such engines were at the same time made available for some other accessory purposes, and that the erection of the stamps had cost little; but then, at the end of the year, the 35-horse power would produce a visible breach in the accounts. He certainly acknowledged the same feelings as any other inventor, and believed his invention to be the best, but was not in the least over-sanguine and intolerant on the subject; on the contrary, he was ready to give his support to every machinery constructed on the same principle of a free action and unimpeded percussion. He considered that we had too much worked on the principle of continuous pressure; that it was not hemp, or flax, or cotton, or oily pulse, or metallic plates, that demanded to be crushed, but crystalline bodies, where a free percussion alone was necessary to destroy the power of adhesion. He had not the presumption to suppose that his principle could not be extended, and his invention improved; but he felt convinced that it would only be by adhering to the same principle, and studying the counteraction of a rapid succession of free strokes. He con-

Mr. Huygens said it was highly to be regretted that legitimate mining should have been allowed to suffer from the jobbing purposes to which it had been made subservient. But it would be an insult to the intelligence and enterprise of the community to suppose that only quackery and puffing could prosper; and that so important a branch of industry should remain stagnant, because a few had used it for gambling purposes. Mining could not be destroyed for all that; it might just as well be said that the daily battles of "bears" and "bulls" would destroy the public debt. Another impediment had been traced to the actual Law of Partnership; but it had sufficiently been shown by the debates in Parliament, on the 27th of June last, that the law did not prohibit limited liability, provided public and written notice was given of the extent of liability submitted to. But if ever a period had arrived at which mining ought to be encouraged, it was certainly at the present moment, when, generally, credit became affected—when a war, of which the end could not be foreseen, threatened to prostrate industry, and to create more distress than had been witnessed at any other period. The two old antagonistic principles that since centuries had divided the world were in presence of each other, and the Herculean struggle could only end by the submission or the destruction of the one or the other of the two parties, or of a general conflagration. It is at such a period that a legitimate exploration of the treasures of our mother, the Earth, was the safest and most profitable investment, that, well-conducted, could not fail to ensure success, and would remain free from those dangerous influences, whose daily action would increase on the public stocks, trade, and, in fact, on every other industry.

1. By crushing and washing.
2. Crushing and triturating, at one and the same time, with mercury.
3. Crushing first, and triturating by a subsequent operation, and passing the ores through a succession of basins with mercury.

4. Crushing, and subsequent calcination and amalgamation, with a series of basins, with mercury.
5. Crushing, calcination, and fusion, without the use of mercury.
6. Decomposition and extraction through a galvanic process.

We must abstain from making our own observations on the metallurgical or chemical views of the inventor until his machinery is in full action. We will only remark that, in a dynamical point of view, the action of this machine demonstrates the fact that in this case friction is dependent on the velocity of motion, because it is through the velocity that the particular degrees of percussion are produced; and the momentum proceeding the percussion lessens in a direct ratio weight, pressure, and friction. The great velocity produces an instantaneous opposite action of the ascending angle to the rotating sphere lifting it, and carrying it with corresponding rapidity over the dividing apex, while the angle of resistance in the parabolic path may be limited according to the weight of the balls, and the velocity of the motion employed. The machine, as a whole, is constructed on true mechanical principles, and is demonstrative of the great mathematical research and ingenious deductions of the inventor.

This is an American invention, relating to the obtaining of wrought-iron direct from the ore by means of a continuous operation, and it consists in exposing the suitably-prepared ore to the action of flames and heated gases upon a series of tables, for the purpose of being deoxidised.

STEAM CLEANSING FOR LOCOMOTIVE TUBES.—A useful contrivance for cleansing the tubes of locomotive boilers by steam, by Messrs. E. and J. Howland, of Manchester, has lately been tried on the Lancashire and Yorkshire Railway with great success. The apparatus consists of nothing more than a valve at the top of the boiler in front, with a flexible pipe passing down from it, long enough to reach any part of the smoke-box. The free end of the flexible tube has a conical jet attached to it, and, in conducting the cleansing operation, the smoke-box door is opened, and the steam, being turned on, the jet is pulled to the open end of each tube in succession. A locomotive, with 320 1½-in. tubes, was perfectly cleaned in this way in ten minutes. The ordinary process, with an iron rod, would have taken 45 minutes, besides injuring the tubes to a serious extent by the attrition.

In the *Mining Journal* of 20th May last, relative to mining progress in America, we inserted a detailed report of the Old Bristol Mine, in the State of Connecticut, which we received from our esteemed correspondent, Mr. C. S. Richardson, who is now located in the United States, with a view to develop the mineral resources of the country; and having obtained much other interesting and important information from the same source, we proceed to lay before our readers a detailed summary of the whole. Mr. Richardson's explorations and reports have caused considerable excitement in New York and elsewhere among capitalists; and it is probable we shall ere long hear of quite a movement as regards mineral property, and mining operations in general, getting into more favourable odour than they have ever before been in America. This is expected to be the case, from the introduction of mining companies on the Cost-book System, now being advocated by Mr. Richardson—the fair and business-like principles of which are greatly admired by capitalists generally, who have, consequently, evinced a much greater inclination to enter into mining pursuits than formerly.

THE LOUDVILL LEAD AND COPPER MINE, which is one of a series belonging to the "Consolidated Hampshire Mining Company," is considered highly valuable, and is situated in the townships of Southampton and East, in Hampshire county, state of Massachusetts, extending over an area of 220 acres of freehold wood-land, and pasture lands—the greater part of which is considered to contain minerals. Independent of the highly-promising mineral indications of the lode and cross-conduits, which are highly metalliferous, the sett possesses local advantages not usually found in England. Through its centre runs the northern branch of Manham River—a never-failing small mountain stream—amply sufficient for all the purposes of ore dress, and, for a length of time will supply sufficient power for draining the mine. The strata upon which the lode rests is highly siliceous, and carries some of the finest timber in the State, and sufficient for the works, even if some of the most extended scale. At a distance of $1\frac{1}{2}$ mile a railway is in course of construction, connecting the lines to Boston, New Haven, Bridgeport, and New York, offering economic and speedy transit for the produce to the shipping ports, and for the carriage back of coal and the necessary merchandise. The land in cultivation is capable of producing every kind of agricultural produce common to the country; and the climate is proverbial for its salubrity and healthfulness. The strata are granite and mica-schist, and the formation being of two kinds, the compact grey and the quartzose. The sedimentary and tabular strata may be easily worked, and have evidently been in a tranquil state ever since their deposition, without a volcanic disturbance. The main lode is 12 ft. thick, traversing the sett for rather more than $\frac{1}{2}$ mile, bearing 20° north, and underlying 15 in. per fm. It carries throughout a lode of ore from 2 to 4 ft. thick, in many places 18 in. solid, but generally the ore is disseminated through the matrix; it is composed of barytes, blende, decomposed granite, go-san, and friable spar. A shaft has been sunk 8 fms. deep at a point where there is a junction with another lode. A stope has been continued north of the shaft, and the lode appears to hold down rich in silver-lead; and, judging from the ore at the pit, it is probable to hold down rich in silver-lead. The ore must have been all saving work. Many tons of this ore are excellent stamper work, and will all be returned when the machinery is erected. The quartz carries iron, iron, and iron, impregnated throughout, for at least 10 ft. wide, with stones of yellow oxide and blue carbonate of copper; at this junction the lode is 30 ft. wide. In the valley an adit has been driven into the hill 12 fms. on the course of the lode, which is perfectly regular, with well-defined walls, underlying 15 in. to a fm., spotted with blende throughout. It has a leader of fine compact quartz; and to judge by the indications, there is no doubt, but that it will be immensely productive. It is considered a first-rate pit, and although the lode is not 10 ft. thick, the backs will prove a copper lode in depth. The western lode bears 10° north of west, and contains copper, lead, barytes, and blende; but it has at present only been investigated to

WILLISTON MINE.—The discoveries here made are considered the most important of any thing of the kind since the year 1764. The sett adjoins the Lond-ville Mine, and the same lode intersects it, but heaved some degrees from its natural position by a copper lode. Openings have been made on the site of some ancient workings, a pit has been sunk, and at only 5 fms. depth a leader course of nearly solid silver-lead ore, 14 in. wide, in a lode 20 ft. thick, was cut, increasing in width as it descends. This fine champion lode has been proved to be regular and productive for mineral throughout a length of five miles; and in any place for this distance within 6 ft. of the surface of the rock both lead and copper ore can be cut. The geological position, however, is entirely different. Sixteen months ago the lode in the opinion of the surface was equal to it has before been seen in any part of the globe. It is all in granite, from which it is inferred that it will hold down in depth, and eventually become a copper lode. The sett extends three-quarters of a mile on the course of the lode, and is at present private property; but it is the intention of the owners to offer it to the Consolidated Hampshire Mining Company. Captain Finch—who, from his long experience, states a very high estimate of the value of the mine, and who has been for some time in America, positively states that with six miners he can raise, when he gets down to the 12 fm. level, 10 tons of this rich ore per month. From the ground already opened 5 tons per month can be raised; but as there is yet no machinery provided to dress the ore as it comes to grass, nothing further has been done. The ore gives about an average of 20 ozs. of silver to the ton, while some picked stones give 75 ozs., containing also a fair per centage of gold; and the lode as it stands is worth 100 to 150 tons of fine gold per acre, not free, but like the Lond-ville Mine, the rents and royalties have been purchased in perpetuity, so that there are no incumbrances, except a trifling for surface damages; and the lease being for ever, no renewal will be required. This property has recently been valued at the sum of 60,000*l*.

MACHINE FOR WASHING COAL.—The great advantage of purifying coals for most manufacturing purposes, and of utilising the inferior portions of coal seams, is now strongly felt, if we may judge by the number of machines which have been proposed to effect the removal of the impurities. We have already called attention to the one of Berard, and we shall now mention that proposed by M. Froehlich. This machine is simple in the extreme. It consists of a large circular cylinder, supported in the ordinary way, in which a wooden framework or agitator is made to revolve by means of an upright shaft, driven by suitable gearing. The bottom of the cylinder is, in its centre is a hole, to which a sort of conical iron bucket is fitted, the lower end of which is open, and is directed downwards into a canal with a bottom of wire gauze. Immediately above the bottom three pipes enter at equal distances from one another, for the purpose of supplying a constant flow of water. A little above this level of those, at one side, is a rectangular opening, provided with a valve, which opens upon another canal with a wire gauze bottom. The cistern is kept about three-quarters full of water; and the small coal, carried up by a chain lift or other mechanism, falls by means of a hopper into the water. The motion of the agitator causes the fragments to describe curves of more or less length, and this allows time for them to arrange themselves according to their specific gravity. The fragments of schist and pyritic coal being much heavier than the pure coal, fall at once on the inclined bottom, and then through a grating pass into the pocket above mentioned, which is emptied from time to time by means of the valve. The fragments of pure coal escape with the water through the rectangular opening, and fall upon the grating, which has an oscillating motion, which serves to project the coal into a wagon or vehicle, whilst the water escapes through the grating. Two men would be sufficient to work a cistern of about 40 in. high and 40 in. in diam., and capable of washing about 20 metrical tons in the day, with the force of one horse. A cistern of about 9 feet 10 in. in diameter and depth would wash 200 tons in the day, and would require a force of 10 horse to work it. The smaller machine would cost about 80*l.*, and the larger about 400*l.*—*Bulletin de la Société Industrielle de Mulhouse.*

ACCIDENTS IN COAL MINES.—"REPORT."

The Select Committee appointed to enquire into the causes of the numerous accidents in coal mines, with a view of suggesting the best means for their prevention, and who were empowered to report the minutes of evidence taken before them from time to time to the House, and to whom a petition, and the reports of the Committee on Coal Mines 1852, and on Accidents in Coal Mines, 1853, were referred, have further considered the matters to them referred, and have agreed to the following report:—

Your committee have especially directed their enquiries to the state of the coal mines since the year 1849, in order to ascertain whether any and what improvements have taken place since that period, when a committee of the House of Lords sat and reported evidence, which, with their report, was laid upon the table of the House on the 20th of June, 1849. They have also directed their enquiries to the state of the coal mines in 1852, and on Accidents in Coal Mines, 1853, were referred, have further considered the matters to them referred, and have agreed to the following report:—

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as inspectors of mines; that no new inspector be appointed who has not had at least seven years' experience as the practical manager of a mine; that as soon as practicable, every person before his appointment as an inspector be subjected to an examination in all the branches of science connected with mining; that reports of the inspectors be laid periodically before Parliament.

It was stated to your committee by the witnesses who represented the working men, that they desired the establishment of sub-inspectors of mines taken from the class which supplies the overmen and other subordinate officers in the collieries, believing that men of such a class would be physically more competent than inspectors to labourous examinations of the workings; and that the miners would resort to them with more freedom to state their complaints and suspicions. Your committee have not approved of this suggestion, considering that the increased staff of inspectors, which they have recommended, will accomplish the objects of the miners, it being plainly the duty of inspectors to encourage and protect every honest statement of apprehended danger for the interests of the employers as well as of the workmen. The interests, indeed, in all that regards the safety of the mine is identical, and your committee hope that the conviction of this truth, and the growth of a good understanding between the workmen and their employers, will render year by year the intervention of the inspectors less necessary. As their warrant for this hope, they refer with satisfaction to the impartial and intelligent views of the representatives of the working men, as stated in the minutes of the general conference, and in the evidence before your committee.

Against the system of employing contractors under the name of "butties," which prevails extensively in South Staffordshire, and partially in other districts, your committee cannot speak too strongly. It will be found by the returns upon the table of the House, that in those districts the accidents are more numerous than in others where greater danger is to be apprehended. These "butties" have no object in view but to diminish, by every means in their power, the cost of production. The ventilation, as well as the safety of the men in other respects, is neglected, and the responsibility is apparently shifted from the chief owners of the mine to these men, who, in point of education, are not superior to the workmen themselves.

Some complaints were made by witnesses as to the defective or injurious operation of existing laws, which it was brought to notice; although, as the alleged grievance must affect many other classes as well as the mining class, it does not belong peculiarly to this committee to suggest the remedy.

These complaints were as to the unsatisfactory constitution and working of the coroners' courts, the difficulty of enforcing compensation to survivors in case of death by negligence, under what is called "Lord Campbell's Act," and the unwillingness of magistrates to convict in cases of misconduct in service by the workmen.

It was stated, as to the coroners' courts, that the jurors summoned were generally workmen, or small tradesmen dependent on the collieries, without instruction, and open to the influence of the parties. In some cases, it is sometimes the case, and seems to be the case of the ancient law directing coroners to summon the inhabitants of the district where death occurred, rather to be questioned as to their knowledge of the facts, than to be themselves judges of the evidence. At the present day the coroner, or rather the constable, takes the jurors from the neighbourhood, without reference to qualification. Considering that the questions brought before an inquest, particularly in cases where the death is supposed to have occurred from neglect or unskillfulness, require careful investigation, it is desirable that the law should be altered, so as to ensure the requisite amount of knowledge in the jury.

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of commercial enterprise, must be relied on for the decrease of the numerous fatal accidents that occur annually in the coal mines.

Your committee cannot close this report without expressing an earnest hope that her Majesty's Ministers may be induced to take the important subject of the accidents in coal mines into their consideration as soon as possible, in order that no time may be lost in revising the law now in force, and in applying such further remedies as may appear practicable and effective.

MINES AND CUSTOMS OF THE FOREST OF DEAN.—No. II.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—I referred generally, in a previous letter, to the enormous absurdity of an individual freeholder in a privileged mining district attempting to single out his lands as the object of a special exemption, and to the, if possible, greater absurdity and impropriety of the legal guardians of those mining privileges suffering such an attempt to be made, much more permitting the attempted claim, with all its vexatious consequences to hang undecided through a period of thirty years. I have represented the gross improbability, that at this late date it could have reasonably been discovered that a grant in the reign of Edward II. could have conveyed or been intended to convey, or could be held in law to convey, what the king did not possess, and, therefore, had no power to alienate. I have indicated the vast excavations of iron ore at an immemorial date, as proving the early importance of the minerals in this freehold at a period long antecedent to the grant of the surface; and as the date of that grant is at least three centuries before the invention of the blast-furnace abolished the ancient processes of the bloomery, and extended the sphere of the iron manufacture to other districts and other classes of materials, we may fairly conclude, supported by records and other evidence of the extent of the primitive operations in other localities of the kingdom, that at the time Edward II. granted to William de Wyesham the "vivarium" of Noxon, with liberty to enclose and cultivate 300 acres of the adjacent waste, at least eight-tenths of the whole of this valuable metal produced in England was derived from the Forest of Dean, and of which the mines of Noxon and the vicinity supplied no inconsiderable portion. Important, in every sense, as this manufacture must have been, both to the king and to the district, it is curious to speculate upon what oversight the grantee, or his stewards learned in the law, when receiving from the king a gift of such unusual value, should have failed to have the important fact recorded in the letter of his conveyance. Considering the right which the king enjoyed and enforced to certain dues on the ore which the free miners raised, it is, indeed, singular that the conveyance of these dues to William de Wyesham was not specified in terms, so that the new proprietor might receive what the king had, and the miners be at the same time protected from exactions beyond the custom. But the absurdity of these features is heightened by the consideration that this custom was fixed and changed from time to time, as occasion needed, by the body of the miners themselves, who, if not incorporated by charter, yet virtually held the essential powers of a corporation, and, therefore, all that the king could convey (were there any evidence in the grant that he proposed to convey anything more than the surface) would have been his own dues, subject then and ever after, to the custom of the hundred. Whether the whole body of miners in council assembled could have assumed a power to extinguish the privileges of the hundred of St. Briavels in perpetuity in favour of William de Wyesham and his lands, had they been so minded, may be a profound legal problem, but quite unnecessary to discuss, for there is no evidence in the grant that it was done, nor any allegation elsewhere that it was attempted or proposed. In fact, important as were the manorial rights in the iron mines to the sovereign when including the whole district, a partial grant of small excerpts would have had but little value to a grantee, and been little coveted by him, even had the contemplation of such a grant been within the bounds of possibility, bringing him, as it would, into collision with the miners of the whole hundred; and it is a peculiarity of interpretation beneath notice to assume that the grant has power to annihilate the mineral property of both king and miners, merely because it makes no mention of either of them. But, *de facto*, the property never passed; these mineral rights were exercised continuously thereafter for centuries, and it is against common sense to assume that they were all the time *de jure* vested in the freeholder in a kind of chrysalis state, to be developed when his descendants saw fit to interpose and break the chain of centuries of undisturbed royal possession. The miners were a third party essential to such an assumed conveyance of title, but they do not appear in the document at all; jointly with the king they possessed and continued to work the mines in Noxon Park century after century, as the records prove; and this freehold claim would never have been heard of, had not the indulgence accorded to Mr. Bragge Bathurst, in 1797, encouraged Mr. Edwin to thrust in his spoke in 1798.

The following extracts from the mine law of the forest are very illustrative, both as showing the actual state of the custom under which all freeholds without exception were controlled, and as affording a clue to the progress of that lax supervision, which at length went so much further than mere neglect, as to assume a positive form, and encouraged the gavellee to concede to the neighbouring gentry the very rights he was appointed to maintain. The code which furnishes these extracts is a reprint, made in 1664, of a previously existing book, of *The Miners Customs in the Forest of Dean*, sanctioned by the Mine Law Court, which held sittings periodically for the regulation of the mines up to the middle of the last century, in a capacious stone building still extant, the miners' house of assembly, and entitled, accordingly, to this day the Speech House. When we consider the necessarily unlettered habits of a secluded mining population, it is no small proof of the attention which had been given to the traditional privileges of the district, and the care with which they had been maintained in force, when we discover that the printing-press had been called in to their assistance at a date so early after its first invention that it became requisite to make a reprint of the code at the remote period of 1664.

"Clause 12.—Also, the miners have such franchises to enquire the mine [*i.e.*, iron ore] in every soil of the king of which it may be named, and also of all other folk without withsaying of any man.

"Clause 13.—And also, if any be that denieth any soil whatsoever it be, sowed or no, of what degree it may be named, then the gavellee, by the strength of the king, shall deliver the soil to the miners, with a convenient way stretching to the king's highway, by the which mine may be carried to all places and waters that been convenient, without withsaying of any man."

"Clause 31.—And that no smith holder, neither miner, neither no other, shall make carriage of the said mine by cart, neither by wayne, but only by the measure called *bellis*, by which the custom of the king shall be measured, so that the gavellee may know and see that the king hath right in every place done; and if any such unreasonable measure may be found, then every miner, by the strength of the king is bailiff to arrest the beast, and whereof the beast shall be forfeit to the king, and the measure burnt."

"Clause 32.—And be it the miners for duty or for wretchedness will such wrong suffer, and also the gavellee for his own lucre, then the constable, by reason of his office, shall pursue by the strength of the king to take and do as aforesaid."

These clauses exhibit both the undeniable right of the miner to the minerals in all freeholds, supported by the authority of the king, and the jealous care that the sovereign, through the default of his representative, should suffer no wrong. I have never been able to find in any record, and certainly not in this *lex scripta* of the hundred of St. Briavels, the remarkable exemption that William de Wyesham or his descendants in any degree with the important iron mines of Noxon Park, were exempted from the law, and the joint powers and privileges of king, constable, gavellee, and free miners, united in the person of this quadruple proprietor.

It may appear hardly credible, that familiar with a law so distinct, his common daily guide in practice, the gavellee should have undertaken to be the sole repealer of it, on the request of Mr. Bathurst, and the perusal of his long-antedated grant; that he should then have neglected the complaints of the free miners, who were paying him gale, when Mr. Edwin attacked them; and that he should subsequently have hesitated, when called upon by my father to "deliver the soil" of Noxon Park; the soil required not being "sowed," neither involving a right of way, but simply a few square feet of wooded scrub to sink an air shaft, to ventilate workings commenced on the Crown land, under the regular formalities of the gavellee's sanction, and with a full knowledge by all parties, that in that district the restrictions of working by separate freeholds were entirely unknown, but that the miners could, and constantly did, enter not only under, but into the soil of all freeholds, "without withsaying of any man."

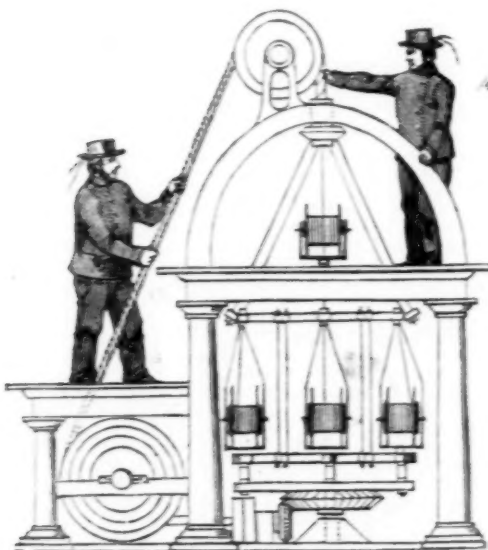
But startling as these facts are, they will assume a much less incredible character if we refer to the last clause extracted, and consider the changes which ensued upon the transfer of the Crown property to parliamentary guardianship, under which, year by year, weakness of management ga-

thered strength. When the control passed from the sovereign to ministerial commissioners, the chief commissioner took the title of gavelier, and appointed as his acting deputy some person in the district, frequently an attorney. As the gaveliers in chief, during the last century, neglected not only the mines, but the valuable forests, the deputy could hardly do better than follow the example of his superiors; until, as it appears, by the end of the century, deputy neglect became developed and promoted into general bounty. This anarchy, so strongly contrasting with the stringent provisions of the mining code, was, doubtless, further aggravated by desuetude of the important functions of the constable of St. Briavels, referred to in clause 92. In this officer was vested of old time the supreme government of the hundred, and the final decision on questions of mineral right. He had a full delegation of the powers of the monarch, was judge in a high court, and held in his castle a gavel for the imprisonment of offenders against the hundred. This office, as controlling the affairs of the district, lapsed into a nugatory and mere formal existence so soon as the Commissioners of Woods and Forests assumed the essential power. The constable no longer possessed the strength of the king, and the strength of the board was nothing or anything. As ministers went in and out upon parliamentary majorities, commissioners were appointed from connection, who, perhaps, knew as little, and cared as little, for the customs of the hundred as for the customs of Japan. They came and went, and woods and deer suffered increasing impoverishment and decay. This gradual degradation in the Crown affairs affords the clue to render credible the above gross encroachments under the connivance or the nomenclature of the gavelier. The Mining Act of 1 and 2 Victoria has placed these affairs on a new footing, the titles to mine property have been cleared of ambiguities, and instead of almost nothing, the Crown does now yield a somewhat respectable revenue. But I doubt if the powers of the gavelier are yet sufficient, if he is adequately endowed with "the strength of the king." A singular case is now in existence which may furnish the subject of a future interesting and illustrative letter. For nearly two years the mine of an absent proprietor has been plundered at the instigation of a notorious neighbouring owner, who has shared the produce with labourers and dealers. The plundered mine is charged with a stated rent to the Crown, and were the owner himself to raise the ore, the gavelier could charge and exact the dues; but because the ore is carried away by strangers not holding the award, and, therefore, not chargeable in the books, the gavelier has no remedy. Though anxious to interfere he has not the power, a very great anomaly; and although the dealer disclaims all liability for buying stolen goods under warning, and throws the whole responsibility of their being in the market upon the gavelier, he is compelled month after month to see those Crown dues, which were the legal owner raising the ore he could recover, passing with impunity into the pockets of felons. This is a very defective state of things; the gavelier ought to hold stringent and peremptory authority "to arrest the beast," and "see that the king hath right in every place done." Meanwhile, the contrast of public and private stewardship is complete.—June 16. DAVID MISKE.



PORTABLE ENGINES, HYDRAULIC RAMS, AND TOOLS.
 BOILER PLATE, CUTTING, AND PUNCHING MACHINES.
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Inspection invited at No. 10, WHARF, CITY BASIN—TODD, SON, AND CO.



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The advantages offered by this society are—ECONOMY combined with SECURITY, and LOWER RATES of premiums than those of any other office, which entitle the assured to participate in the profits, and considerably lower than those of any other Mutual Assurance Society.

The WHOLE OF THE PROFITS are divided every fifth year among the assured, and a bonus is added, after the payment of the fifth annual premium, to every policy effected on the participating scale, if a claim accrue thereon prior to the next division of profits.

The sum of £287,000 was added to policies at the last division, which produced an average bonus of 48½ per cent. on the premiums paid.

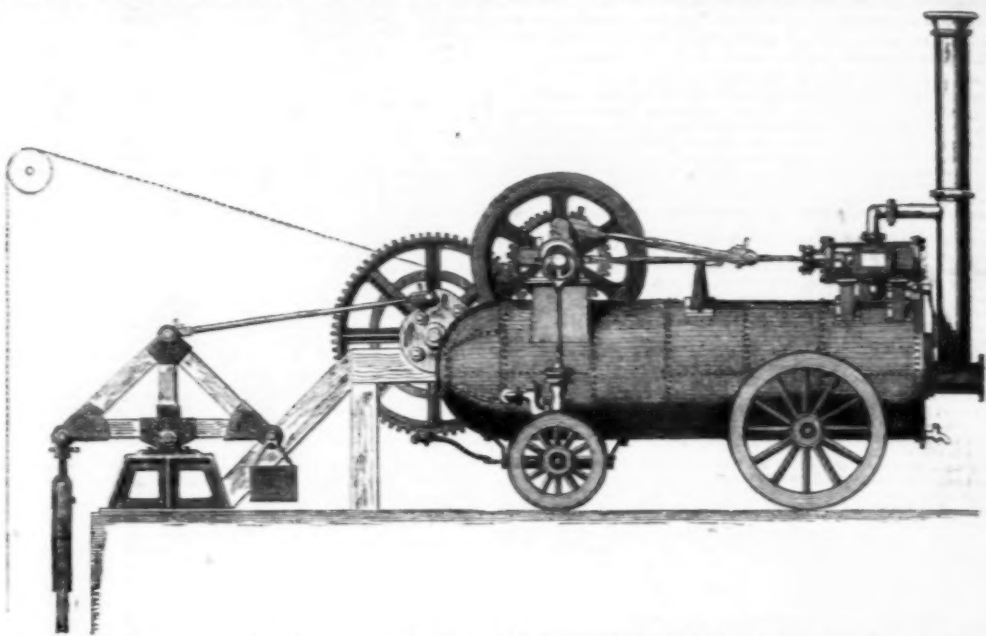
Number of policies in force, 6606.
 The Assurance Fund amounts to £1,540,000. Income upwards of £226,000 per annum. No charge for policy stamps, nor for service in the Treasury or Militia corps.

The subjoined table shows the advantages offered by the society, resulting from low premiums, and a division of the entire profits among the assured:—

Age at entry.	The annual premium according to the Northampton rates to secure £1000.	Assured by the Economic rates.	Thus giving an immediate bonus of £1000.	Economic bonus on policies of seven years' standing, becoming claims in 1854.	Also a contingent bonus on policies on becoming claims in 1854.	Total sum payable at death, if occurring in 1854.
30	£21 15 10	£1260	£360	£115	£12	£1387
35	25 13 5	1265	365	125	12	1343
40	33 19 6	1140	140	130	11	1291
45	45 6 0	1080	30	141	10	1261

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The woodcut represents a new arrangement of boiler and engine, successfully introduced for several years by MEDWIN AND HALL. Its construction affords a wide field for the application of portable steam-engines, embracing capabilities rendering employment of steam more general than hitherto contemplated or offered by any previous competitor.

The portable engines commonly used are worked by locomotive boilers—liable to get out of order, and used almost exclusively for agricultural purposes—to which MEDWIN AND HALL'S engines are also applicable, though not regarded as the primary part of their object, but to be employed in work of greater magnitude, required by contractors, colliery owners, miners, and especially for the Colonies, in sawing, pumping, grinding, crushing, blasting, winding, stamping, and every purpose to which steam power is available. Manufactured with or without wheels, from 4-horse power to 50-horse power. The whole of the mechanical parts are fixed on the boiler, including a pump to feed the same, a fly-wheel, which may be used as a hand-wheel, or the power applied in any other way.

The boiler is different from any other, being what is termed "the Horse-Shoe"—very economical in fuel—the furnace arranged to burn wood or coal at pleasure: they have an efficient safety-valve, and MEDWIN AND HALL'S patent steam and water gauges, thereby preventing the possibility of accident from shortness of water, or overpressure of steam. May be worked by the most inexperienced person.
 52, BLACKFRIARS-ROAD, LONDON.

The following observations appeared in the *Morning Advertiser*, *Morning Post*, *Daily News*, *Standard*, and *Sea* newspapers, and in the *Mining Journal*:—

We witnessed on Thursday a trial of a Patent Portable Steam-Engine, constructed by Messrs. MEDWIN AND HALL, of the Blackfriars-road, which is undoubtedly a vast improvement, and must, if we mistake not, cause a complete revolution in mining operations. Any mine now requiring steam-power can obtain that important auxiliary in a few weeks. Our witnesses continually testify to the delays in surface operations, arising either from the difficulty in obtaining masons, or even, when the engine-house is completed, the time that is lost in the erection of efficient machinery. It is well known that the portable engines generally used are worked by locomotive boilers, which are liable to get out of order, and thus cause vexatious delay and expense. In Messrs. MEDWIN AND HALL'S this complaint is not likely to occur. The whole of the mechanical parts are fixed on the boiler, including a pump to feed it, and a fly-wheel, which may be used as a hand-wheel, or the power applied in any other way. The boiler is different from any other, being what is termed the "horse-shoe." The present engine has been constructed for the Old Trevelthick Consolidated Mining Company, and was started in the presence of several members of the committee: it is called a 20-horse power, although capable of being driven to 25. The speed was 60 strokes per minute, and performed the work in such an admirable manner, that not the slightest vibration was perceptible. It consumes about 6 lbs. of coal per hour per horse power, and the total weight is only 5 tons. The Old Trevelthick Company intend sending it to the mine by rail-road, and confidently expect to have the water in four weeks after its arrival. At the time of the shaft filling with water there were 35 tons of ammunition, which, as the company intend to smelt themselves, they estimate of the value of £450 per ton. The portable engine will enable them to realise the amount in a few number of weeks under the old system they would in months. The owners of these engines will also have the advantage of removing the power to any part of the mine at a very trifling expense.

The following is a list of engines sold during the present year:—

Haddon's Bay Company.
 Southampton Dock Company.
 Abercrombie Iron Company, Wales.
 Downland Ironworks, Wales.
 Penryn Dock Mine, Wales.
 Penryn Mine, Wales.
 North Towy Mine, Wales.
 Polkmoor Mining Company, Wales.
 Sir A. Webster, Bart., Duffield, Wales.
 Jno. Knowles, Esq., Worcester.
 Bristol Water-works.
 Inverness Bridge, Rochester Bridge, and the Chelsea New Bridge.
 QUARTZ ROCK MARIPOSA.
 Carsons Creek Mining Company.
 Anglo-Australian Gold Mining Company.
 British Australian Gold Mining Company.

The following is a list of contractors, and others, who have rented these engines during the present year:—

Thos. Jackson Esq., Fimilion.
 J. Kell, Esq., Fimilion.
 G. Myers, Esq., Lambeth.
 Spenser, Esq., Richmond.
 Carlisle, Esq., Richmond.
 J. Perry, Esq., Hackney.
 Cooper, Esq., Leicester.
 H. Johnson, Esq., Dudley.
 W. Dethick, Esq., London.
 W. Smith, Esq., Woolwich.
 W. Pinner, Esq., Lambeth.
 Messrs. Newall and Co., Newcastle.
 Messrs. Hutchings and Co., Millwall.
 Thos. Earl and Co., Westminster.
 Messrs. Baker and Sons, Lambeth.
 Messrs. Riddys, City.
 Messrs. Piper and Sons, City.
 Messrs. Knight and Son, Bow.
 Messrs. Bates and Co., Look's-Fields.
 Crystal Palace Company, Forest Hill.
 R. Goodison, Esq., Lewisham.
 J. Clark, Esq., Farnham's Inn.
 B. Fowler, Esq., Whitefriars.
 Richards, Esq., Blackfriars.
 Spiller, Esq., Blackfriars.
 Messrs. Kiper and Co., East Greenwich.
 And many others.

The following are certificates, received from the owners of these engines, now at work at mines, &c.:—

Old Trevelthick Consolidated Mining Company, Quakers-court, Old Broad-street.
 Sept. 8, 1853.

GENTLEMEN.—In accordance with your request, I have this day examined Messrs. MEDWIN AND HALL'S Patent Steam-Engines. I beg to say that I was highly pleased in the way and manner the 20-horse power engine, for the Old Trevelthick Lead, Silver, and Antimony Mines, worked this day 70 strokes per minute. The engine is calculated to do much more if required. The boiler, weighing about 4 tons, of the very best quality iron, and well put together; other parts will bear the strictest examination—the engine, in all, weighing about 5 tons. The whole is set on four wheels, like any other carriage, taken off or put on in a few minutes, and can be moved from one place to the other at the shortest notice. I think, as a miner of long experience, that these engines will answer every purpose for new mines and quarries, and in places where there is not a large quantity of water, and a 50 or 60 cylinder steam-engine is not required. In a short time we shall see long and expensive adits done away with, and MEDWIN AND HALL'S engines used up to sink our mines to a depth of 30, 40, or 50 fms. There is no doubt on my mind but these engines are the best and cheapest ever invented for a quick trial; and those, like Mr. Cochran's crushing machines, will be in general use throughout England and elsewhere. Great credit is due to the inventors of these valuable machines.

Great Ducky Mine, Lantlogus near Camelford, Sept. 17, 1853.
 GENTLEMEN.—In answer to your enquiry as to the working of the portable high-pressure steam-engine hired by the Great Ducky Mining Company, and afterwards purchased by them, I beg to state, from nearly nine months' experience, that it works very well; much better, indeed, than we at first expected. I have known many mines, when first started, that have presented most favourable indications, but have been abandoned just on the eve of good discoveries, from the inability of the adventurers to work them, for want of top water for wheels, or a sufficient capital to erect a Cornish steam-engine, and other parties coming after them have derived all the benefit. I think, of course, only to those mines where the water is not very plentiful, and a large engine is not, therefore, required. In such cases your portable engines will be found of great service, and I can strongly recommend the adoption of them to mining parties. Wishing you every success.

I am, Gentlemen, your obedient servant,
 W. PENROSE.

Treppard Mine, Feb. 2, 1854.
 GENTLEMEN.—Agreeably with your request some time since, I beg to say, yesterday I inspected the portable steam-engine you sent from your firm to the Old Trevelthick Mine, near Port Isaac. I find it is an engine of 20-horse power, with two cylinders attached to the boiler, with an efficient safety-valve, and patent steam and water gauges; thereby preventing the possibility of accident, from shortness of water, or overpressure of steam. I find the company of the mine has put the engine in gear, or on the which principle, which will answer well. The engine works in the house 4½ strokes to one in the shaft, which causes the engine to work more steadily, and answer better in the shaft. I found it capable of going full 50 strokes a minute in doors, and 12 in the shaft, without the least difficulty, and with a very moderate consumption of coal. This engine, I consider, will thoroughly prove the mine, and put

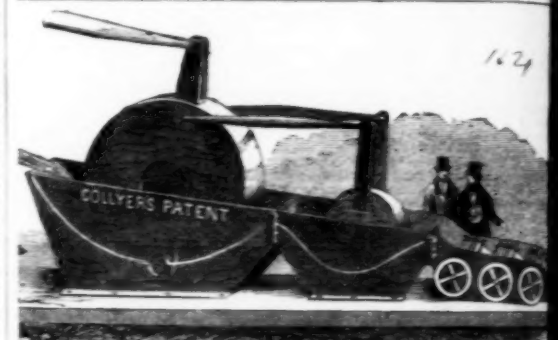
it to a very considerable depth below what it is at present, and should the present Old Trevelthick Company prove as lucky as former companies, a fortune is sure to ensue. I must say great credit is due to the projectors of this engine, which will answer, as is well adapted for many of our Cornish mines. With these engines we can pump, wind, crush, or stamp, &c. One remark I wish to make is, great credit is due to George Terrill, the driver up. Wishing you every success in the sale of these engines.
 I am, Gentlemen, yours truly,
 W. PENROSE.

To Messrs. Medwin and Hall.
Old Trevelthick Consols, near Wadebridge, Cornwall, April 5, 1854.

GENTLEMEN.—I have much pleasure in bearing testimony to the efficiency of the 20-horse patent portable steam-engine, which is now at work in the above mine. The engine, since her erection, has been working exceedingly well. She is now, with 6 in. box, drawing water with the greatest facility, 30 fms. deep. This duty appears scarcely anything for the engine to do. The coal she at present consumes is, on average, from 6 to 7 cwt. in 24 hours. I could strongly recommend your portable engines for the working of shallow mines, particularly where deep adits economy is studied.
 I am, Gentlemen, your most obedient servant,
 RICHARD VERRAN.

North Towy Mine, Carmarthen, April 5, 1854.
 GENTLEMEN.—In reply to your favour of the 1st March, I am much pleased with the portable engine supplied to this mine by your company. It performs its duty exceedingly well, and I consider them well adapted for the development of lodes at a low depth. We are now working with a 6-in. lift, and with our present amount of water, I consider that the engine will drain the lode to the 60 fms. level.
 I am, yours respectfully,
 W. H. REYNOLDS.

Messrs. Medwin and Hall, London.



D. COLLYER'S GOLD ORE MACHINE IS NOW BEING
 CONSTRUCTED WITH DISPATCH BY MESSRS. RAYMONDS AND SONS, of Ipswich, and will be ERECTED AT THE COLONIAL GOLD WORKS, ROTHERHAM, where EXPERIMENTS will be CONDUCTED ON A LARGE SCALE, in order to test the machine, pyrites, quartz, &c., of Great Britain or other countries, FREE OF CHARGE.
 No. 4, North-street, Strand, where a model may be seen.

RUBEN PLANT'S PATENT MINERS' SAFETY-LAMP

MANUFACTURED BY
SALT AND LLOYD,
 BIRMINGHAM.

The great obstacle with which the working miner has had to contend in the use of the ordinary safety-lamp is its small amount of illuminative power, by which his work is much curtailed in quantity. The great desideratum of an abundance of illuminative power, combined with safety, is now secured by this patent, in which, by the employment of glass internal cylinders, and metallic gauze of silvery whiteness, a light far superior to a naked candle is obtained; and there is no inducement to the men to remove the tops of the lamps.

"A lamp which, with all the simplicity of the Davy, and with great reduction in weight, has very great illuminative power, and possesses the elements of perfect safety."
Mining Journal.

IMPROVED LIFTING JACKS.

MANUFACTURED BY
W. AND J. GALLOWAY,
 PATENT RIVET WORKS,
 MANCHESTER.

The attention of parties who employ
Lifting Sinks,

is respectfully requested to the superiority of those annexed, over those hitherto in use.

OLD ESTABLISHED MANUFACTORY OF MINERS' UNDERGROUND HAT CAPS.—E. COCK, REDRUTH, CORNWALL, is at all times prepared to execute UNLIMITED ORDERS for MINERS' UNDERGROUND HAT CAPS, which he is sending to all parts of the globe, adapted to every climate.

ASSAYING.—CITY SCHOOL OF CHEMISTRY AND ASSAYING.—OFFICE, DUNNING'S ALLEY, BISHOPSGATE STREET WITHOUT. Conducted by JOHN MITCHELL, F.R.S., Author of *Manual of Practical Assaying*, *Manual of Agricultural Analysis*, *Treatise on the Adulteration of Food*, *Metallurgical Papers*, &c. ASSAYS and ANALYSES of MINERALS, METALS, and every substance containing metal.

SPECIAL INSTRUCTION IN ASSAYING AND CHEMISTRY for gentlemen desiring to proceed to the colonies.

All enquiries respecting scale of fees, &c., to be addressed as above.

London: Printed by RICHARD MIDDLETON, and published by HENRY BARNETT, proprietors, at their office, No. 26, FLEET-STREET, where all communications should be addressed.

July 5, 1854.